

Stuart Creek

The Great Barrier Reef Coastal Wetlands Protection Program Pilot Program was commissioned by the Australian Government to deliver on-ground actions for the sustainable management of 22 priority wetlands in the Great Barrier Reef catchment. The \$2 million program was delivered over two years by a consortium led by Conservation Volunteers Australia and involved partnerships between government, community and landowners to identify and protect these wetlands.

Project summary

The aim of the Pilot Program project at Stuarts Creek was to build on and coordinate existing rehabilitation projects and to raise public awareness of the area's value. Project officers were employed to coordinate the efforts of volunteers, local businesses and community groups. Their work consisted of:

- woody weed control
- revegetation
- invasive grass reduction trials.

About the site

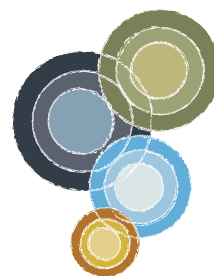
Stuart Creek is located within the Ross River basin on the southern outskirts of Townsville, in the Burdekin Dry Tropics bioregion of Queensland. Two waterways are hydrologically linked during flood events via a common distributary coastal floodplain adjoining the lower Ross River.

Stuart Creek still has exceptional wetland values despite its location on the margins on Queensland's third-largest city and within a partially developed urban and industrial catchment. The creek is the last freshwater system within the Ross River basin that retains open estuarine connections and is an important migratory estuarine breeding and nursery area for fish (include key recreational species: barramundi, mangrove jack, tarpon, jungle perch and giant herring).

There are perennial deepwater lagoons distributed throughout the mid to lower catchment of Stuart Creek. In the seasonally dry tropics, permanent freshwater habitats are important refuges for aquatic organisms through the dry season.

Land use in the upper Stuart Creek catchment consists mainly of rangeland grazing and a defence training area. The runoff from these areas of the catchment is essentially natural, so the creek has relatively good water quality.

Much of the riparian vegetation along the length of Stuart Creek has been heavily disturbed by weeds and fire. An active program of community-based revegetation and restoration along reaches of Stuart Creek owned by Queensland Rail has been operating for over 10 years. These areas, visible from the Bruce Highway, are now well advanced in their recovery.



Queensland
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Photo 1: Stuart Lagoon levee bank (photo: Jim Tait)

Challenges

The riparian corridor of Stuart Creek is infested with **woody weeds**, particularly chinee apple. This has significantly changed the floristic structure of riparian vegetation along several sections of the creek.

Loss and **damage to riparian vegetation** is widespread through the creek system as a result of past clearing, competition by invasion of exotic grasses and inappropriate use of both fire and grazing. In areas where the loss and degradation of riparian vegetation is more extensive, there is an associated deterioration in **water quality** and in-stream habitats.

Invasion of the riparian zone by **exotic grasses** presents a severe fire risk to remnant riparian vegetation. Para grass infests stream banks and encroaches into the waterways of the deepwater lagoons along Stuart Creek. Guinea grass is prevalent above the waterline on ungrazed banks of the upper riparian zone.

A culvert (now obsolete) obstructs **fish passage**, thus limiting recruitment of key migratory species (i.e. barramundi and jungle perch) which are of important ecological and recreational value.

The lower reaches of Stuart Creek are currently flanked by a mix of **land uses** including grazing, heavy industry, rural residential and urban. A large part of the lower creek system is included in the Townsville State Development area, so significant additional commercial and industrial development could occur after 2010. There are also plans for major Townsville Port road and rail infrastructure works to dissect the area.

These individual challenges also have cumulative or flow-on effects. It is therefore important to manage each site in a holistic way.

Rehabilitation actions

Chinee apple was cleared and chipped with the support of local businesses, which were happy to contribute to improving the amenity of the local area. The chippings were then used as mulch on the revegetation sites, where 4800 trees were planted to help prevent reinfestation of riparian weeds and to redress past clearing.

A **guinea grass fuel reduction trial** was carried out at one of the reaches of Stuart Creek. Local graziers slashed and baled 20 hectares of grass on the adjacent woodland and grassland, then used the hay bales to mulch other riparian revegetation sites. This management technique was shown to be feasible when undertaken by the landholder, but might not be economically viable if a paid contractor was necessary.



Photo2: Stuart Creek south bank (photo: Jim Tait)

To investigate obstruction to fish passage and assess the remediation options, a geomorphological study was carried out on the culvert. Three viable solutions were suggested:

- construction of a fish ladder to remove the barrier effect of the culvert
- part removal of the culvert to allow some fish movement during moderate flows
- complete removal of the culvert.

The final recommendation was that the culvert be completely removed to reinstate fish passage.

Partnerships

At Stuart Creek a cooperative management arrangement has been set up with Queensland Rail (a major landholder) to ensure their fire management program (hazard reduction via tractor slashing, spraying and controlled burning of invasive grasses) has minimal impact on the adjoining natural and replanted riparian vegetation sites.

Working together

The Pilot Program project at Stuart Creek focused on broadening or reinvigorating existing community activities and partnerships. The key was having a dedicated project officer employed by Conservation Volunteers Australia (CVA) to coordinate the work. The diverse range of groups involved includes:

- Stuart State Primary School; Pimlico TAFE; James Cook University
- Wulguru Scouts; Wulguru Girl Guides; Castle Hill Girl Guides
- Townsville Region Bird Observers; Conservation Australia; Townsville Bushwalking Club
- Coastal Dry Tropics Landcare; Creekwatch; Rotary
- International Student Volunteers; Better Earth Volunteers
- Hard Rock Earth Moving; Xstrata Copper; Colinta Holdings
- Work for the Dole; Green Corps
- Townsville City Council—Integrated Sustainability Services
- Department of Natural Resources and Water; Queensland Rail; Queensland Parks and Wildlife Service.

Forming business partnerships can be an effective way to achieve management goals in an area. Conservation Volunteers Australia attracted additional investment for the Stuart Creek project so that it could be self-sustaining after the pilot project ended. This has been achieved through cash and in-kind support from Townsville City Council, Landcare Australia Limited/Coca Cola Amatil, Xstrata Copper, Colinta Holdings, Hastings Deering and Burdekin Dry Tropics NRM/Oceanwatch.

After the activities at Stuart Creek had run for 12 months, there was a highly successful community planting for National Tree Day. Another feature of the community engagement program was the involvement of scouts and guides, who not only participated in hands-on rehabilitation works but also received recognition through the awarding of Certificate 1 in Active Volunteering (delivered by CVA).

Monitoring

Monitoring provides essential feedback about the success and impacts of rehabilitation works. At Stuart Creek, a regular monitoring program has been developed involving Wulguru Scouts/Guides and Stuart School students under supervision of CVA's Creekwatch Program Coordinator.

It is paramount that future developments be sensitively planned and designed to ensure the values of Stuart Creek are maintained, protected and improved. Community engagement was important in elevating the profile and highlighting the values of Stuart Creek. It is hoped that this community awareness will translate into a community push for sensitive urban design and planning that take into consideration the conservation values of the creeks.

Further reading

Tait, J 2006, *Assessment of values, condition and strategic management. Options for lower Stuart Creek reaches (Stuart Prison—Bruce Highway)*, report by EConcern.

Veitch, V 2006, *Aquatic habitat and fish community structure in Stuart Creek*, ACTFR interim report, 19 October 2006.

Contacts

Australian Centre for Tropical Freshwater Research

Phone: (07) 4781 4262

www.actfr.jcu.edu.au

Department of Employment, Economic Development and Innovation (formerly Department of Primary Industries and Fisheries)

Northern Fishway Team

Phone: 13 25 23

www.deedi.qld.gov.au

WetlandCare Australia

Phone: (02) 6681 6169

www.wetlandcare.com.au

Photos courtesy of WetlandCare Australia



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